Social Justice Alert: Future Innovators and Leaders Fall Behind in Academic Achievement

This manuscript has been peer-reviewed, accepted, and endorsed by the National Council of Professors of Educational Administration as a significant contribution to the scholarship and practice of school administration and K-12 education.

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This study examined the achievement trends of advanced learners and the relationship between Illinois' school district characteristics and student performance using Illinois Standards Achievement Test (ISAT) scores. The 3rd grade students scoring in the Exceeds category in ISAT reading and math within 707 Illinois school districts during the school year 2006-2007 formed the cohort groups and were followed longitudinally through the 8th grade. On ISAT reading and math, the pattern of losing advanced learners occurred. For science, increasing proportion of Exceeds students was observed. Significant differences were found by gender, ethnicity, and district socioeconomic status. This study shed many remarkable findings that merit further discussion of policy making and future research.

ISSN: 1532-0723

Introduction

One uncomfortable truth in the American education system is beginning to unfold. The accountability movement for at least one population of students, the high ability learners, has misled the nation and compromised the achievement of millions of these students. These future leaders and innovators have been compromised by the *No Child Left Behind Act of 2001* (NCLB). There are no provisions in the law to ensure high ability students make adequate achievement gains on an annual basis. Moreover, high ability students of color and those living in poverty are especially compromised as they fall further behind as they advance through school (Education Trust, 2014; Loveless, 2008; Olsewski-Kubilius & Clarenbach, 2014; Plucker, Burrough, & Song, 2010; Wyner, Bridgeland, & Diiulio, 2007).

The focus in school districts across this country, for over a decade, has been on the struggling learners, the students on the bubble, and the students in the middle (Education Trust, 2013). Olszewski-Kubilius and Clarenbach (2012) suggest, "the focus on minimum levels of competency and raising the lowest achieving students may indirectly negatively affect the growth of higher achieving students because the most important resource -- a teacher's time and attention -- has been singularly focused on the struggling students" (p. 8). In addition, most school districts fail to disaggregate standardized achievement data by focusing only on the "meets standard" metric for reporting results and ignore the trend data on the gains and losses of the high ability learner.

If schools make adequate yearly progress (AYP), districts are satisfied or recognized for their achievements. Moreover, most districts do not place a high priority on the identification of underachievement of high ability learners. According to many teachers and administrators, the majority of instructional time is spent delivering classroom instruction to ensure students currently in the middle stay in the middle on standardized assessments and they are also expected to help struggling learners meet the designated grade level standards. Farkas and Duffett (2008) found 60% of teachers stated low achievers were a top priority in their schools, while only 23% asserted high achievers were a top priority. Forty percent of teachers also suggested the content for honors and accelerated courses was watered down and lacked rigor. When asked which students were likely to get one-on-one attention from teachers, 80% said it would be the academically struggling students, with only 5%, alleging it would be the academically advanced students.

Watkins and Sheng (2008) utilized state cohort achievement data in Illinois to conduct a longitudinal investigation of high ability learners in Grades 3-8 from 2000-2005. The longitudinal investigation sought to explore the relationship between district characteristics and the losses or gains of the percentage of students who scored in the Exceeds (Advanced Learner) category on the state's reading and math assessment, the Illinois Standards Achievement Test (ISAT). District characteristics were examined and included socioeconomic status, district–per-pupil expenditures, district type, and enrollment size. Results in reading demonstrated a significant drop (13%) in achievement for these high ability learners from Grades 5-8, and even a larger drop (19%) in mathematics from Grades 3-5. Even though districts with a higher socioeconomic status initially had a higher number of students in the Exceeds (Advanced Learner) category than the lower socioeconomic status districts, the drops in achievement were similar.

The current longitudinal study (2006-2011) builds on the Watkins and Sheng's (2008) study, includes a longer period of cohort data on the revised 2006 state assessment and the ISAT,

examines a newly added subject (science), and further examines discrepancies in achievement trends of Advanced Learners across gender and ethnicities.

Literature Review and Conceptual Framework

A groundbreaking study conducted by (Xiang, Dahlin, Cronin, Theaker, & Durant, 2011) utilized the *Measures of Academic Progress* (MAP) assessment, developed by the Northwest Evaluation Association (NWEA), to track the individual performance of 82,000 high performing students from Grade 3 to Grade 8. MAP is an adaptive computerized assessment that measures a student's learning level. Researchers investigated where the MAP assessment was used if high performers were adequately challenged and provided with appropriate instruction to enable them to perform at high levels over time. Students in the study were referred to as high achievers since they initially scored at the 90th percentile or above on this assessment. Findings from the study revealed a 42.7 % loss in their high performing math status from Grade 3 to 8 and a 44.1% loss in their reading status from Grade 3 to Grade 8. The researchers suggested " if these youngsters are left to fend for themselves while attention and resources are showered on their lower-achieving peers, one might expect them to drop closer to the average" (p. 1).

The term "Excellence Gap" grew out of a study conducted by Plucker et al. (2010). The researchers reviewed the national and state assessment data to ascertain the existence or non-existence of an excellence gap with those students performing at the highest levels of student achievement over time. Findings from the National Assessment of Educational Progress (NAEP) suggested the excellence gaps, especially for different racial groups, gender, and socioeconomic status, have widened during the NCLB era. The researchers stated "There has been little change in the percentage of students performing at the advanced level in reading, with particularly low performance across all subgroups in Grade 8" (p. 4). In Grade 4 mathematics, the White population increased 4.6% from 1996-2007, the African American students 0.7%, and Hispanic students 1.3%. In grade 8, the White students increased 4.5 %, the African American students 0.8%, and the Hispanic students 1%. Data on socio-economic status showed students at Grade 4, who were living in poverty or on the fringe of poverty and eligible for free and reduced lunch, and were performing at the advanced level, increased only 1.2 % while students not eligible for free and reduced lunch gained 5.6 %. At Grade 8, those enrolled in the free and reduced lunch increased 0.8%, while those not enrolled in the free and reduced lunch program gained 5.7 %. In Grade 4 mathematics, the percentage of male students scoring at the advanced level increased by 3.9 %. Females increased by only 2.7 %. In Grade 8, males scoring in the advanced level increased by 3.8% and females by 2.9 %. In reading, there was a slight discrepancy between males and females at grade 4 with reading scores increasing by approximately 1% with males at 0.8% and females at 0.9%. At Grade 8, from 1998-2007, the percentage scoring at the advanced level showed slight gains with 0.2% for males and no change for females. According to Plucker et al. (2010), the underprivileged minorities, the economically disadvantaged, as well as the English Language learners, constitute a smaller proportion of students scoring at the highest levels. The researchers concluded, "focusing only on minimum competency gaps is not a sound strategy for reducing excellence gaps" (p. 22). The researchers' conclusion suggests progress had been slow in reducing the excellence gaps since the passage of NCLB.

Loveless (2008) analyzed the 2005 NAEP data of those students scoring at the 90th percentile on the Grade 8 math assessment and found most of the students came from more privileged socioeconomic backgrounds. Among the high math achievers, only 10.2% qualified

for free or reduce lunch, 81.5% were White, 21.6% African American, and 4.4% Hispanic. Over 64% of these students came from backgrounds where mothers had graduated from college. In addition, the high achievers were more likely to attend suburban schools; only 10.6% attended high poverty schools. "High achievement students are more likely to attend schools that assign students to math classes on the basis of ability (i.e. tracking)" (p. 29). Over 78% of these students attended a school that tracked eighth-grade mathematics with 86.6% of teachers having majored or minored in mathematics in college.

Moore, Ford, and Miller (2005) asserted "despite decades of efforts (e.g., preschool programs, afterschool programs, summer programs, academic supports, etc.), many students of color still lag behind their White counterparts academically" (p. 168). The researchers recommended students of color who lag behind need to be identified as underachievers by school personnel (teachers, administrators, or school counselors), and these educators must be knowledgeable about the achievement and ability of these students and the fact they are performing below their ability. According to the researchers, if deficit thinking regarding students of color exists, the underachievement will go unrecognized and necessary interventions will not be employed. Ford (2011) contends that school policies, practices, and overall procedures play a very important role in the underrepresentation of racially and culturally different students and stated this is an area of much needed research.

The underachievement of high ability learners from low-income homes has emerged as another national concern. Wyner, Bridgeland, and Diiulio (2007) investigated the achievement of high achieving students (scored in the top 25%) from low income (family income below the national median) families. The researchers alerted the public to the fact that attention on how these students disproportionately fall out of the high achieving groups during elementary and high school needs to be addressed. Findings from these researchers indicated there were about 3.4 million students residing in low income households, with more than one million K-12 children who qualified for free and reduced lunch and ranked in the top quartile academically. According to the researchers, only 56% percent of these capable students from lower income backgrounds maintain their status as high achievers in reading by fifth grade. Together, these studies were used as the framework of this study, as they focused on achievement gap of advanced learners across gender, ethnicity, and socioeconomic status. They signal to national and state public policy makers that more focus needs to be placed on monitoring the progress of advanced learners to stem the underachievement of these future innovators and country leaders.

Purpose of the Study

The purpose of this study was to identify the academic progress and trends of high achieving students. Using the Illinois Standards Achievement Tests (ISAT) scores over the six-year period, researchers formulated the following research questions:

1. What are the achievement trends for advanced learners in Illinois school districts?
2. How do the achievement trends compare in terms of gender and ethnicities?
3. How do the achievement trends compare in terms of districts' socioeconomic status?

Methods

This study used a secondary data set analysis to examine the yearly progress of high achieving students at the school-district level. Secondary data set analysis is an analysis of data that is

collected by someone else for another primary purpose (Smith, 2008). The method provides access to large samples, and if longitudinal data are used, the researcher can answer questions that are relevant to population trends over time. The ISAT data set is an example of a secondary data set. The ISAT is a criterion-referenced test aligned with Illinois Learning Standards that examines students' knowledge and skills in three subject areas: reading, mathematics, and science. Based on the performance on the ISAT, students are divided into four categories using cutoff scores: Exceeds, Meets, Below Standards, and Academic Warning. According to the ISAT performance-level descriptions, Exceeds Standards is defined as student work that demonstrates advanced knowledge and skills in the subject. Variables in this study include:

- District percent scoring in the Exceeds category in reading, math, and science for a given grade level.
- Socioeconomic status -- The proportion of students receiving free and reduced lunch in a school district was obtained from 2006 to 2011. Higher percentage means there are more socioeconomically disadvantaged students in the school district. Because these percentages do not vary much from year to year (correlations for district percent of low income between these years range from 0.927 to 0.969), these percentages were averaged over the six years to obtain a single number to index district socioeconomic status.
- Gender -- Males and females scoring in the Exceeds categories.
- Ethnicity -- White, African American, Asian, Hispanic, and Multiracial students scoring in the Exceeds categories.

Population and Sample

Because states tend to apply different criteria to identify high achieving students, due to the accessibility, objectivity, and representativeness of the chosen sample, elementary and unit schools districts in Illinois were examined in the study. Among 771 school districts (376 elementary and 395 unit school districts) in 2006, only 707 school districts with valid ISAT reading, math, and science scores from 2006 to 2011 were selected for this study. Altogether, the sample consisted of 707 school districts with 338 elementary school districts and 369 unit school districts. The third grade students scoring in the Exceeds category in reading and math within these school districts during the school year 2006-2007 formed the cohort groups and were followed longitudinally through the eighth grade. The percentage of students scoring in the Exceeds category in science was obtained at the fourth- and seventh-grade levels for the cohort groups in 2007 and 2010 respectively.

Analysis

Descriptive analyses were conducted with the purpose of describing the data rather than to generalize the findings to the whole population. The district percent of Exceeds data were examined for the overall achievement trends of advanced learners, and then were disaggregated according to gender, ethnicity, and district socioeconomic status.

This study is not without limitations. This study used Illinois Standards Achievement Tests (ISAT) scores and demographic characteristics and socioeconomic status data in Illinois. Using single state data limits generalizability of findings to other states. Caution is warranted if attempting to generalize results from this study to other states.

Results

Question 1: District Achievement Trends for Advance Learners

An earlier study by Watkins and Sheng (2008) examined score changes for Illinois' advanced learners in ISAT reading and math at three grade levels: Grades 3, 5, and 8. In their study, the proportion of Exceeds students at the three grade levels were 25.79%, 25.47%, and 12.11% for reading and 26.71%, 7.76%, and 17.79% for math. Between the earlier and the current study, the average enrollment size of Illinois school districts slightly increased from 2,356.14 to 2,533.43 and the percentage of students receiving free and reduced lunch increased from 26.45 to 33.64 percent.

ISAT Reading. The percentage of students scoring in the Exceeds category in reading slightly increased from Grade 3 (24.69%) to Grade 6 (28.87%), but from Grade 6 to Grade 7 (19.45%) and Grade 7 to Grade 8 (9.74%), it declined dramatically (Table 1). More strikingly, in an earlier study, during the period of 2002 to 2005, the state observed a loss of about 1.25 standard deviation units in the percentage of students scoring in the Exceeds category between Grades 5 and 8. The drop was more significant during the period of 2008 to 2011 at 1.74 units, meaning that the percentage of students scoring in the Exceeds category in Grade 8 is on average about 1.74 standard deviation units below that in Grade 5. In other words, this was the difference between Grades 5 and 8 in average percentage of students scoring in the Exceeds category divided by the average variability of standard deviation in ISAT reading at the district level ((29.19-9.74)/ ((11.26+11.59+12.97+12.65+11.27+7.46)/6) = 1.74).

ISAT Science. Science test scores on the ISAT were mandated to be reported starting from 2006. The results for the ISAT Science score trend were more encouraging. In 2007, about 21.4% of students from Grade 4 performed in the Exceed category, and the percentage of advanced learners at Grade 7 increased to 25.55% in 2010 showing a 0.34 = ((25.55-21.41)/(11.24+13.30)) standard deviation unit gain between the two grade levels.

ISAT Math. Overall, ISAT Math scores seemed improved in terms of the proportion of Exceed students in Math when the results from the same grade level were compared to that in Watkins and Sheng's (2008) study. The proportion of Exceeds students at Grades 3, 5, and 8 was 40.59%, 16.56%, and 30.85% for the present study compared to 26.71%, 7.76%, and 17.79% from Watkins and Sheng's (2008) study. Similar to their study, ISAT Math scores displayed a rebounding pattern from the third-grade level to the eighth-grade level after observing the lowest point in the fifth grade. Illinois school districts experienced on average about 1.69 standard deviation unit reductions in the percentage of students scoring in the Exceeds category from Grade 3 to Grade 5 and about a 1.0 standard deviation unit gain from Grade 5 to Grade 8 (those numbers were 1.62 and 0.82 during 2000, 2002, and 2005).

Table 1
Mean and Standard Deviation for District Percent Exceeds Students in ISAT Reading, Math, and Science for 707 Districts

	Read3	Read4	Read5	Read6	Read7	Read8	Sci4	Sci7
Mean	24.69	26.34	29.19	28.87	19.45	9.74	21.41	25.55
S.D.	11.26	11.59	12.97	12.65	11.27	7.46	11.24	13.30

	Math3	Math4	Math5	Math6	Math7	Math8	SES	Enrollment Size	Per pupil spending
Mean	40.59	29.72	16.56	23.47	27.72	30.85	33.64	2,533.43	9,110.74
S.D.	15.50	14.88	11.58	12.94	14.75	15.69	20.19	15,275.68	1,969.50

Question 2A: Gender and Achievement Trends

As student demographics have been rapidly changing in Illinois (White population has been continuously decreasing while it was the opposite for the Hispanic group), how test scores compare between genders and among ethnicities or various socioeconomic backgrounds is a topic of growing interest. Few studies in the past systematically compared test scores across students' demographic backgrounds.

ISAT Reading. Overall, the proportion of Exceed students on the ISAT Reading was higher for girls, and this pattern was consistent across all grade levels (Table 2). For both genders, the same pattern of losing Exceeds students from Grade 6 to Grade 7 was noticeable. One interesting finding was that the proportion of Exceeds in reading increased slightly between the fifth (26.44%) and the sixth grade (27.52%) for boys; whereas that number slightly decreased for girls during the same time period (from 32.42% to 30.50%). This different trend between male and female students would have not been discovered if only aggregated data were analyzed.

ISAT Science. Examining the ISAT Science test scores by gender also provided a remarkable finding. Even though the same pattern of increasing proportion of Exceeds students was observed in both male and female students, male students' test scores were substantially higher than those from female students. The proportion of Exceed students was 5.20% higher for male students at the fourth-grade level and the gap slightly increased to 5.58% at Grade 7.

ISAT Math. The overall summary of ISAT Math scores across grade levels showed that after observing the lowest point at the fifth-grade level, the proportion of Exceeds students kept increasing for both male and female students. Examining students' math scores by gender also provided another important finding. At the sixth-grade level, the proportion of Exceeds students between males and females was similar (23.89% for males and 23.43% for females). The proportion of Exceeds students was slightly higher for male students in the seventh grade, but in the eighth grade, more female students scored in the Exceeds category than male students.

Table 2
Test Score Comparisons between Male and Female Students

Gender		Read3	Read4	Read5	Read6	Read7	Read8	Sci4	Sci7
Male	*Mean*	21.22	24.55	26.44	27.52	16.85	8.42	24.02	28.22
(N=659)	*S.D.*	11.31	12.34	13.08	13.00	10.77	7.19	13.02	14.56
Female	*Mean*	28.37	28.50	32.42	30.50	22.63	11.24	18.82	22.60
(N=658)	*S.D.*	13.24	13.00	14.46	14.16	13.11	9.11	11.45	13.17
		Math3	Math4	Math5	Math6	Math7	Math8		
Male	*Mean*	42.52	30.39	17.53	23.89	28.15	30.20		
(N=660)	*S.D.*	16.45	15.38	12.82	13.76	15.45	15.89		
Female	*Mean*	39.32	29.14	16.05	23.43	27.46	31.55		
(N=658)	*S.D.*	16.40	15.70	11.69	13.86	15.00	16.45		

Question 2B: Ethnicity and Achievement Trends

Overall, Asian, White, and Multiracial ethnic groups scored better than Hispanic and African American students in the number of advanced learners on all ISAT subject areas (Table 3). The Asian group outnumbered other ethnic groups in the percentage being placed in the Exceed category across all grade levels and subjects. One remarkable finding was the Multiracial group's performance. The percentage of advanced learners from this group was higher than those from Hispanic and African American in all subject areas. When data were compared to the White group, the percentage of advanced learners in ISAT reading and math from the Multiracial group was generally lower, but at Grade 8, the gap became barely discernible. However, in science, the percentage of advanced learners was much higher for White students at both Grades 4 and 7 between those two groups.

ISAT Reading. Overall, the proportion of Exceed students on the ISAT reading was higher for White, Asian, and Multiracial groups than Hispanic and African American groups and percentage gaps across ethnicities were consistent across all grade levels. Asian students outperformed all ethnic groups at all grade levels.

ISAT Science. All ethnic groups demonstrated an increase in the percentage of advanced learners between the fourth and the seventh grade. There was an increase of about 8.68% for Asians, 5.02% for Whites, and 4.37% for Multiracial, and only 1.61% for Hispanics and 1.05% for African Americans.

ISAT Math. Across all ethnic groups, the percentage of Exceeds students kept decreasing from Grades 3 through 5, bounced back at Grade 6, and then increased through Grade 8. Similar to findings in reading, the proportion of Exceeds students on the ISAT Math was higher for White, Asian, and Multiracial students than for Hispanic and African Americans; this pattern was consistent across all grade levels. Asian students' performance was considerably higher than Whites with the proportion of Exceeds students 22.27% higher at Grade 3 and 27.89% higher at Grade 8.

Table 3
Test Score Comparisons across Ethnicities

Ethnicity		Read3	Read4	Read5	Read6	Read7	Read8	Sci4	Sci7
White	*Mean*	27.38	29.12	32.50	32.03	21.96	11.21	24.14	29.16
(N=677)	*S.D.*	11.43	11.40	13.30	12.67	11.62	7.80	10.90	12.75
African American	*Mean*	10.37	10.55	13.71	12.33	8.11	2.49	5.22	6.27
(N=169)	*S.D.*	7.42	7.38	8.18	7.96	6.76	3.28	5.18	6.24
Hispanic	*Mean*	13.65	17.20	15.63	15.75	10.18	5.00	9.35	10.96
(N=180)	*S.D.*	9.16	10.20	9.11	8.88	7.56	5.41	8.22	7.60
Asian	*Mean*	39.66	43.05	45.31	48.74	38.84	24.42	30.24	38.92
(N=95)	*S.D.*	15.86	14.79	15.70	15.16	15.70	14.37	14.83	14.97
Multiracial	*Mean*	22.55	25.59	29.04	28.36	20.17	12.07	16.38	20.75
(N=70)	*S.D.*	14.44	13.67	15.71	15.42	14.29	11.76	11.15	13.69

		Math3	Math4	Math5	Math6	Math7	Math8
White	*Mean*	43.97	32.44	18.61	26.31	31.04	34.32
(N=677)	*S.D.*	15.52	14.95	12.25	13.35	14.87	15.93
African American	*Mean*	19.57	12.34	6.18	8.91	10.99	12.76
(N=169)	*S.D.*	11.48	8.42	5.37	7.04	7.53	8.95
Hispanic	*Mean*	29.55	20.51	7.73	12.39	16.25	21.28
(N=180)	*S.D.*	12.47	10.61	5.84	8.45	9.69	11.24
Asian	*Mean*	66.24	58.13	40.94	52.14	57.48	62.21
(N=95)	*S.D.*	16.75	16.34	17.83	17.16	16.98	17.43
Multiracial	*Mean*	37.66	27.63	19.18	23.25	26.24	33.46
(N=70)	*S.D.*	15.94	15.00	13.75	14.69	16.00	17.91

Question 3: District Socioeconomic Status and Achievement Trends

To analyze the influence of district socioeconomic status on achievement trends of the Exceeds students, district socioeconomic status (SES) data were broken down by quartile. The top quartile consists of districts with less than 19% of the students receiving free and reduced lunch and those are considered high-SES districts. The bottom quartile consists of districts that have more than 46% students receiving free and reduced lunch and those that are low SES districts.

The middle two quartiles are districts that have more than 19% but less than 46% students receiving free and reduced lunch and those are the districts that have moderate SES status.

ISAT Reading. Achievement trends in reading, math, and science for districts with different levels of socioeconomic status show that the lower the district SES is, the lower the percentage of students scoring in the Exceeds category across the three ISAT test areas (Table 4). The sharp drop in the percentage of students who scored in the Exceeds category from Grade 6 through Grade 8 was seen across all SES levels in ISAT Reading. When analysis was made at the SES level, the dropping pattern started earlier in Grade 5 for low economic status districts, while the other two groups observed a slight gain between the fifth and the sixth grade.

ISAT Math. Another remarkable yet disturbing finding was that for low SES districts, both the middle and the high SES districts observed an increase in the percentage of advanced learners from Grade 7 to Grade 8, but the low SES districts experienced a continual drop in the percentage of advanced learners in ISAT Math. When Grades 4 and 8 were compared, both the high and middle SES districts saw the percentage of Exceeds category on ISAT Math at Grade 8 bounced back and slightly outnumbered that in Grade 4, but this pattern was not observed for the low SES districts.

ISAT Science. The gaining pattern in the proportion of Exceeds students on ISAT Science was similar. Although different SES school districts observed the same increasing pattern between Grades 4 and 7, the amount of increase was the least in the low SES districts: High SES (6.98%), Middle SES (4.18%), and Low SES (1.22%).

Table 4

Means and Standard Deviations for District Percent Exceeds Students in ISAT Scores by District Socioeconomic Status (SES)

SES		Read3	Read4	Read5	Read6	Read7	Read8	Sci4	Sci7
High SES	*Mean*	34.20	37.21	41.41	41.63	30.74	16.83	29.67	36.65
(N=176)	*S.D.*	9.92	9.52	11.40	10.54	11.05	7.61	9.62	11.27
Middle SES	*Mean*	24.46	25.66	27.96	27.99	17.79	8.74	21.65	25.83
(N=354)	*S.D.*	9.14	8.79	10.06	9.22	8.29	5.88	9.43	10.60
Low SES	*Mean*	15.68	16.90	19.50	17.94	11.53	4.69	12.74	13.96
(N=177)	*S.D.*	8.40	9.23	9.78	8.75	7.36	4.27	9.62	9.95

		Math3	Math4	Math5	Math6	Math7	Math8
High SES	*Mean*	52.65	42.53	26.36	34.56	41.97	46.34
(N=176)	*S.D.*	13.40	13.75	12.20	12.16	13.99	13.83
Middle SES	*Mean*	40.41	28.42	15.02	22.66	26.22	29.21
(N=354)	*S.D.*	13.36	12.06	9.39	10.59	11.10	11.98
Low SES	*Mean*	15.68	16.90	19.50	17.94	11.53	4.69
(N=177)	*S.D.*	8.40	9.23	9.78	8.75	7.36	4.27

Conclusions, Implications, and Recommendations

Since ISAT implemented the annual reporting requirements and added science as another subject for mandatory reporting in 2006, no studies systematically examined the achievement trends of advanced learners in Illinois. Watkins and Sheng's (2008) study examined ISAT datasets in 2000, 2002, and 2005, and showed how the state was not addressing the academic needs of advanced learners by reporting the dropping proportion of advanced learners on ISAT reading and math. Findings from their study showed that ISAT reading dropped substantially from Grade 5 to 8, and for ISAT math, the initial drop from Grade 3 to Grade 5 was more radical. That study raised concerns about curriculum quality and student preparation, even though there was a rebounding pattern between Grades 5 and 8. The current study added gender, ethnicity, and socioeconomic status variables, and traced achievement trends of the cohort group of advanced learners from 2006 until 2011 on ISAT reading, math, and science to capture a more comprehensive picture of advanced learners' achievement progress in the state.

By tracking annual changes in the proportion of Exceeds students in reading, math, and science areas by demographic and socioeconomic status variables, this study shed many remarkable findings that merit further discussion of policymaking and future research. On ISAT Reading, the pattern of losing advanced learners occurred dramatically from Grade 6 to 7 and the same pattern continued through Grade 8. Further examination of ISAT Reading by gender, ethnicity, and socioeconomic status variables supported the Plucker et al. (2010) study that reported female students' higher performance in NAEP reading and male students' higher performance in math. This study also found the percentage of students in the Exceeds category on ISAT science was much higher among male students than female students. When gender was ignored, the proportion of advanced learners on ISAT reading slightly decreased between Grades 5 and 6, but when results were broken down into gender, male students' percentage of Exceeds slightly increased between Grades 5 and 6. Ignoring gender also masked a remarkable phenomenon in ISAT Math. Although the percentage of Exceeds was lower for female students than for males from Grade 3 until Grade 5, females started catching up in Grade 6, and at Grade 8, more female students scored in the Exceeds category than males.

Finally, yet importantly, results from this study confirmed the significant influence of socioeconomic status (SES) on achievement (Watkins & Sheng, 2008; Wyner, Bridgeland, & Diiulio, 2007). Higher SES districts experienced a higher percentage of advanced learners in all ISAT areas and at all grade levels. Tracking achievement trends each year provided new insights regarding patterns of gains and losses in the proportion of Exceeds category related to SES. On ISAT reading, low SES districts experienced a dropping pattern earlier, starting in Grade 5, while the same pattern seemed to start at Grade 6 for the high and the middle SES districts. After observing the lowest point on ISAT Math in Grade 5, districts started gaining more advanced learners every year, but the percentage and pace of increase was much lower in low SES districts, and the slower increase in numbers of advanced learners was also found on ISAT Science when district SES levels were compared.

Major findings from this study call for an important research agenda. First, a study needs to investigate the exact reasons for the substantial loss of advanced learners in reading in Grades 7 and 8 and investigate the same phenomenon observed in math from Grade 3 to 4. Analysis of standards and benchmarks at each grade level needs to be examined along with the articulation and coordination of a rigorous curriculum. If high ability students have mastered the grade level

standards, an accelerated curriculum needs to be employed. In addition, the early identification of high ability minority students and students living in poverty needs to be implemented in all Illinois school districts. School principals and superintendents need to monitor the achievement of these students and provide early interventions when underachievement begins to occur. School board members also need to become aware of this underachievement phenomenon and create school board policies to ensure the needs of these students are met. Xiang et al. (2011) claim, "every casualty among this group is a loss in human capital, and schools need to find and implement strategies that effectively stem performance losses among students who show early promise" (p. 16).

Data from this study indicate educational leaders in this country need to be aware of this pattern of underachievement of the high ability learners and encourage all school districts to disaggregate the data to ensure the achievement of high ability students are analyzed and studied and action is taken. Local school districts must address the instructional needs of high ability learners and curtail the achievement losses of this special population of students. These students are the innovators and the future leaders in our new global economy. The President of the United States, the Secretary of Education, State Department leaders, and school district officials must assume leadership in advocating and taking action to ensure this population of students is not left behind.

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